

Brotherton and Byram Aims

Brotheron and Byram Community Primary Academy believes that:

Mathematics is a creative and highly interconnected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

In line with the national curriculum for mathematics, Brotherton and Byram's aims are to ensure that all pupils:

- become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
- can solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Our aims for all children are:

- ALL pupils access a broad and balanced maths curriculum
- To present maths as an exciting, challenging, creative and applicable subject
- To ensure that all children can achieve their full potential in mathematics
- To nurture confident, independent and resilient mathematical learners
- Develop strong foundational knowledge of mental strategies to enhance their reasoning and problem solving abilities

Our Maths aims are supported by our Key Development Priorities on our School Development Plan.

SECTIONS	SUMMARY EVALUATION
KEY DEVELOPMENT PRIORITIES	 Strategic Priority One: A rigorous and sequential approach to the teaching and learning of key knowledge ensures children effectively demonstrate and apply 'sticky knowledge'. Strategic Priority Two: Children are effectively challenged and have the resilience and stamina to challenge themselves. Strategic Priority Three: Good quality first teaching ensures our most vulnerable and SEND children make accelerated progress, closing the gap between vulnerable and non-vulnerable







Brotherton and Byram Intent

Brotherton and Byram Community Primary Academy is committed to following the principles outlined by the National Centre for Excellence in the Teaching of Mathematics (NCETM). Our goal is to provide a high-quality mathematics education that fosters a deep understanding and love of the subject among our pupils. To achieve this, we:

- Ensure a Mastery Approach: We have adopted a mastery approach to teaching mathematics, which means providing all pupils with the opportunity to achieve a deep understanding of mathematical concepts, skills, and processes. This will be achieved through careful sequencing of concepts, regular assessment, and providing extra support for those who need it. We use the 5 big ideas of Coherence, Fluency, Mathematical Thinking, Variation and Representation and Structure as vehicles to learning.
- Encourage Mathematical Thinking: We encourage our pupils to develop a positive attitude towards mathematics and to think flexibly, critically and creatively. We use open-ended questions and activities to stimulate their curiosity and to help them to develop reasoning and problem-solving skills.
- Use Real-life Contexts: We ensure that the mathematics taught in our school is rooted in real-life contexts so that our pupils can see the relevance and importance of the subject. We provide opportunities for pupils to apply their mathematical knowledge and skills to real-life situations. We provide opportunities for pupils to work collaboratively, as well as independently, to develop their communication and team-working skills.
- Coherent Curriculum: Our inclusive, sequential curriculum ensures all pupils can access lessons which are appropriately scaffolded to meet the individual needs of learners through adaptive teaching (including pupils with SEND). This ensures that each child is challenged and supported to achieve their full potential.
- Develop Fluency: We develop our pupils' fluency in the foundational knowledge of mathematics, including number, geometry, measurement and statistics. We ensure that our pupils have a solid foundation in these areas, which will enable them to tackle more complex mathematical concepts in the future.

By following these principles, our primary school's mathematics programme will provide our pupils with a rich and rewarding mathematical education, one that prepares them well for the challenges of secondary school and beyond.





Implementation

Lessons follow a flexible, teaching for mastery approach, rooted in the 5 big ideas.

The teaching at Brotherton and Byram provides opportunities for:

- Whole class learning
- Group learning
- Paired learning
- Individual learning
- Groupings/individual learning with a teacher or teaching assistant.
 - Planning

EYFS

A Long Term Planning Framework has been developed to teach the Early Learning Goals through the <u>Birth to 5 Matters</u> Guidance and the <u>NCETM 6 Key Areas for Early Mathematics</u> Learning. Maths is taught daily with another, 5-10 minute session, 4 times a week of the <u>NCETM Mastering Number</u> <u>Programme</u> for Reception children. Opportunities to consolidate and further develop mathematical understanding is embedded throughout continuous provision and



enhancements. We explore mathematical concepts both indoors and outdoors to help children apply their thinking to a range of real world contexts.

KS1 and KS2

Long Term planning frameworks for Years 1-6 have been adapted from the NCETM Curriculum Prioritisation learning sequence, which is based upon the <u>DfE Ready to Progress Criteria</u>.



This resource provides coherent sequencing for the primary maths curriculum. It draws together the DfE guidance on curriculum prioritisation, with the high quality professional development and classroom resources provided by the NCETM Primary Mastery PD materials; we have adapted the planning where necessary to suit our setting. Our curriculum is cumulative and once a taught unit is 'finished' it is linked throughout future









learning wherever possible to enable children to make connections and to make learning stick. <u>NCETM Curriculum Prioritisation</u>

Year 1 LTP Year 2 LT	P Year 3 LTP	Year 4 LTP	Year 5 LTP	<u>Year 6 LTP</u>
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Medium term plans provide strong learning outcomes within each unit and are adapted on a daily basis, depending on children's needs. Each small learning step builds carefully from the previous step, building on pupils' prior knowledge to develop new skills. These small steps ensure lessons are accessible to all learners and can be adapted where appropriate for individual needs.

All classes have four maths lessons per week, plus a short Foundational Fluency session three-five times each week.

Resources

The NCETM Curriculum resources provide the key small steps, representations and language used whilst teaching, further questions and investigations are also drawn from various sources .



Brotherton and Byram children also use a selection of online platforms:







Representations (concrete and pictorial) are used to reveal the structure of mathematical concepts, linked carefully with precise mathematical vocabulary and the abstract written form which allows children to access the learning at all levels and to develop a deeper and more conceptual understanding of the subject.





High order questioning and **reasoning questions** stems are used within lessons to ensure all pupils have the opportunity to think in greater depth around a concept and support them to make mathematical connections.

Stem sentences are used to support fundamental mathematical structures which are built upon each year. Stem sentences are a way of modelling full sentences; the structure gives children extra confidence to explain their mathematical thinking. Stem sentences have gaps to allow for changing variables and allow children to practise reasoning and use precise and technical vocabulary.



Each lesson begins with '**Memory Lane**' which provides an opportunity for pupils to revisit and quickly practise prior knowledge and unpick any misconceptions to ensure children can be successful in the learning outcomes and make connections.







Foundational Fluency

Foundational Fluency Sessions

- These are 10-15 minute sessions taught separately to the main Mathematics lesson.
- Foundational Fluency sessions give pupils the opportunity to learn foundational knowledge to automaticity and practise prior knowledge.
- Brotherton and Byram Community Primary Academy: RTP and Foundational Fluency Facts: Y1-6



Assessment

Assessment is regarded as an integral part of teaching and learning at Brotherton and Byram Community Primary Academy. We believe that assessment is a continuous process, used to identify gaps in

pupils' understanding.

Formative Assessment and Marking

Formative Assessment will take place before, during and after the point of learning. During lessons, teachers and ATs will work together to assess the individual pupils to ascertain who has grasped the learning objectives and who requires further

support, instruction or intervention. This is done in a number of ways:

- Live marking Teachers and Support Staff will identify correct answers and misconceptions during the 'Independent Work' phase of the lesson with a green or purple highlighter. Next steps to extend or deepen understanding may be given.
- Peer marking Pupils may work together to find solutions and offer alternative methods to an answer.
- Self-reflection Pupils are encouraged to reflect on their own thinking, understanding and how their knowledge can be applied to a range of situations and contexts.
- In-depth marking and feedback Staff will complete a 'Ready to Progress' assessment sheet electronically to highlight the objectives that the pupils have achieved. This then highlights any pupils who may require further support.

Ready to Progress Criteria

Throughout the teaching sequence, the <u>DfE Ready to Progress Criteria</u> are used to assess pupil's understanding of taught content. We combine the RTP with key Foundational Fluency Facts to ensure pupils are secure in key knowledge within each year group.

Summative Assessment

Pupils are assessed both part way through and at the end of each teaching cycle. Question Level Analysis is used to ensure each child progresses towards end of year expectations.

5 ² - 1 =	• 1/4 x 80 =	7.2 + 1.9 =	• 27 + 1.6 =
1 × 42 =	• 470 ÷ 10 =	at 300 - 173 =	2/9 + 1/3 =
÷ 3 = 7	● 50% x 140 =	1,278 + 1,486 =	20% of 80 =
9 1 _{4 x 40 =}	• 12 × 7 =		+ 7 = 80
3/4 + 1/15 =	• 100 - 7 =	7.31 - 0.01 =	• ² / ₅ x 20 =
• 19 = 8	• x 12 = 120	a 12% + 3% =	247 x 11 =
0 48 -	• 1/ ₀ + 3/ ₉ =	3 x 17 =	• 17 x 1,234 =
2 x 48 =	• 258 + 729 =	120 ÷ 4 =	116 ÷ 2 =
23 + = 27	• 86 ± 2 =	2.5 + 0.01 =	3,455 ÷ 5 =
40 x 5 =	80 ÷ 2 =		





Early Years	Y1	Y2 and Y6	Y3,4,5
Completion of the EYFSP with assessment for each child against the ELGs at the end of children Reception year: Number ELG and Numerical Patterns ELG.	Formative assessment throughout the year with an RtP summative assessment at the end of the year.	3x Testbase papers during week 6. 3x SATs papers, one at the end of each cycle.	3x Testbase papers during week 6. 3x NTS papers at the end of each cycle







CPD

Our commitment to delivering high quality teaching and learning is supported by on-going, relevant CPD opportunities for all staff, including working with Maths specialists, training from the Yorkshire Riding Maths Hub and participating in Maths TRGs, ensuring that the teaching and learning team can evolve their pedagogy in line with the principles of best practice.

Resources

Pupils are actively encouraged to access resources during Maths lessons with each classroom containing a designated 'Maths Area'. Teachers model to pupils how to use these resources effectively to solve problems and deepen their understanding. By Year 6, pupils should be independently self-reflecting on their learning to decide if they require the use of practical resources to aid their learning.

SEND/ Inclusion

Brotherton and Byram Community Primary Academy is an inclusive school that allows pupils of all learning styles and needs to access the curriculum. Teachers carefully plan lessons to accommodate pupils with special educational needs or disabilities so that the pupil(s) develop confidence in mathematics and foster a love of learning. Support staff are deployed effectively to assist pupils who require additional support and our range of representative structures cater to a variety of learning styles.